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IN RE APPLICATION OF

CAROLE HOBON, ET AL.

SERIAL NO: 10/516,512

FILED: DECEMBER 1, 2004

FOR: GLASS-CERAMIC PLATE AND METHOD FOR MAKING SAME

: EXAMINER: SIMONE, C.

:

: GROUP ART UNIT: 1794

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## DECLARATION UNDER 37 C.F.R. §1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

We, Carol Hobon, Alain Renault, Helene Harmand, and Pablo Vilato, citizens of France, hereby declare and state that:

1. We are co-inventors of the above identified U.S. patent application.

2. We been working in the area of glass and ceramic structures for appliances for at least the following time periods Ms. Hobon: 10 years, Mr. Renault: 30 years, Ms. Harmand: 14 years, and Mr. Vilato: 17 years.

3. At least one of us is an inventor/co-inventor of at least the following patents in the area of glass and ceramic structures:

U.S. Patent No. 6,691,699 (Ms. Harmand and Mr. Vilato);

U.S. Patent Nos. 5,786,289, 5,418,025, and 5,324,374 (Ms. Harmand); and

U.S. Patent Nos. 7,671,303, 7,449,244, 7,375,307, 6,528,440, 6,492,623, 6,399,183, 6,194,690, 6,182,472, 6,140,618, 6,120,282, 6,118,103, 6,103,338, 5,968,219, 5,648,172, 5,288,527, and 5,206,089 (Mr. Vilato)

4. Based on our experience in glass and ceramic structures, especially with regard to glass-ceramic plates used in appliances, it is desirable to bevel the edge of the plates to give a better appearance and to allow more ergonomic operation and ease of cleaning. These bevels will not detract from the mechanical strength of the plates as long as the width of the bevels is limited to well below 35 mm. In practice, these bevels generally are the order of 12 mm wide. In this regard, increasing the width of these bevels can cause problems, particularly irregularity of the line along the crest of the bevels. This irregularity is due to tiny faults included in most raw materials used to make such plates. These faults include small bumps or irregular widths along the edge of the plate to be beveled.

5. We discovered that the irregularity along the crest the bevel occurs when the height of the bevel is too small in comparison to the width of the bevel. We further discovered that when a ratio of the width of the bevel (measured along the slope from the top to the bottom of the bevel) to the height of the bevel is 23.3 or less, the irregularities along the crest of the bevel can be eliminated. In fact, when the above noted ratio is 23.3 or less, even bevels greater than 35 mm can be included in a plate without the detrimental effects to the plate noted above.

6. The following experimental data provided by Mr. Vilato that shows the claimed ratio provides the desired results noted above, while ratios above the claimed ratio cannot provide satisfactory results.

Introduction

According to the claimed invention, the ratio of the width L of the bevel to the height of the bevel, expressed in the same units, is less than 23.3. In the following, this ratio is called "a". The critical value of this ratio is called "a*". Below the critical value of this ratio, the crest (or top) line of the bevel obtained is then particularly straight, without any visible undulations. As a result, the appearance of the bevel from the top is aesthetically pleasing.

### 3.1. Large bevel for a plate without additional thickness : a > 23.3
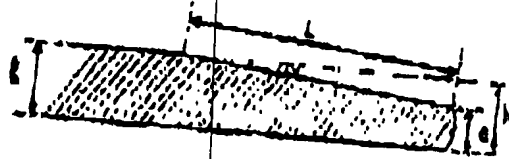


a = ratio of the width (L) of the bevel to the height of the bevel (h-e)

$a = L/(h-e)$

L = width of bevel measured along the slope of the bevel from the top to the bottom of the bevel

e = width of heel at least 2.5mm

h = thickness of the glassceramic plate, with its tolerance t, h +/-.

In our case h = 4 mm +/- 0.2 mm

__For a bevel at least of 35 mm (for example 40 mm)__

$\alpha$ : angle of the bevel

$\sin \alpha = (h-e)/L$

with the nominal thickness : h = 4 mm

e = 2.5 mm ; to maintain good mechanical strength properties the width of heel (e) at least 2.5 mm

L = 40 mm

| $a = L/(h-e)$ | $a = 40/(4-2.5) = 26.7$ | a > recommendation |
| --- | --- | --- |
| $\sin \alpha = (h-e)/L$ | $\sin \alpha = (4-2.5)/40 = 0.0375$ | angle $\alpha$ (°) = 2.15 |
| $L_1 = (h_1-e)/\sin \alpha$ | $L_1 = (3.8-2.5)/0.0375 = 34.67$ | $\Delta L = 10.7$ mm |
| $L_2 = (h_2-e)/\sin \alpha$ | $L_2 = (4.2-2.5)/0.0375 = 45.93$ | |

$L_1$ and $L_2$ are the variations of the width of the bevel for the tolerances of the thickness of the plate i.e. $h_1$ = 3.8mm and $h_2$ = 4.2mm. $\Delta L$ = 10.7 mm is above the acceptable limit $\Delta L$" = 9.32 mm. The bevel is aesthetically unacceptable.

### 3.2. Large bevel for a plate with additional thickness : a < 23.3



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$a$ = ratio of the width (L) of the bevel to the height of the bevel (H-e)
$a = L/(H-e)$
$L$ = width of bevel measured along the slope of the bevel from the top to the bottom of the bevel
$e$ = width of heel
$H$ = total thickness of the plate with the raising
$h$ = thickness of the plate

For a bevel at least of 35 mm (for example 40 mm)
$\alpha$ : angle of the bevel
$\sin \alpha = (H-e)/L$
with the nominal thickness is $H = 5.3$ mm
$e = 2.5$ mm : to maintain good mechanical strength properties the width of heel (e) at least 2.5 mm
$L = 40$ mm

| $a = L/(H-e)$ | $a = 40/(5.5-2.5) = 13.3$ | $a$ : in accordance with recommendation |
|---|---|---|
| $\sin \alpha = (H-e)/L$ | | |
| $L_1 = (H_1-e)/\sin \alpha$ | $L_1 = (5.3-2.5)/0.075 = 37.33$ | angle $\alpha$ (°) = 4.30 |
| $L_2 = (H_2-e)/\sin \alpha$ | $L_2 = (5.7-2.5)/0.075 = 42.67$ | $\Delta L = 5.3$ mm |

$L_1$ and $L_2$ are the variations of the width of the bevel for the tolerances of the thickness of the plate +/- 0.2 mm so $H_1 = 5.3$mm and $H_2 = 5.7$mm $\Delta L = 5.3$ mm is below the maximum acceptable limit $\Delta L^* = 9.32$ mm. The bevel is aesthetically acceptable.

7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

8. Further declarants saith not.

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Carol Hobon

2010, November 8th
Date

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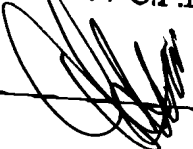Alain Renault

2010, November 8th
Date

_____
Helene Harmand

2010, November 8th
Date

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Application No. 10/516,512
Declaration under 37 C.F.R. §1.132

Pablo Vilato

November 8th, 2010

Date

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